

April 30, 2007

MEMORANDUM

TO: Mr. Steve Murray, P.L.S. - Tippecanoe County Surveyor

FROM: David W. Eichelberger, P.E. - CBBEL, Indianapolis

PROJECT: Orchard Subdivision, Phase 3, Section 1
CBBEL Project No. 02-038 (FC)

DEVELOPER/OWNER: Komark Business Company, David and Chris Kovich

LOCATION: 40° 26' 09" Latitude
-86° 56' 58" Longitude

RECOMMENDATION: Final Approval with Conditions

The applicant proposes to install storm sewer infrastructure and construct curbed streets for Phase 3, Section 1 of the Orchard Subdivision. Initial construction activities for the overall development began in May of 2000. The 14.3-acre project site located east of County Road 300 West and north of State Road 26 near West Lafayette will contain 28 single-family residential lots. Existing topographic conditions indicate the project site, which lies along the west side of the KB&S Railroad, drains separately to the west and to the south to an unnamed tributary of Jordan Creek, which flows in a westerly direction parallel to the south property line of Phase 3, Section 1. Stormwater runoff will be conveyed to dry-bottom detention ponds within Outlots G and H prior to discharging into the UNT Jordan Creek. Twin 48-inch RCP culverts will be placed in the receiving stream channel to facilitate an extension of Scarlett Drive along the western limits of the proposed section. The applicant is requesting approval of the stormwater drainage system and stream channel culvert pipes.

In 2002, Parsons, Cunningham and Shartle Engineers, Inc. prepared a floodplain and floodway analysis of the unnamed tributary to Jordan Creek during the design of The Orchard, Phase II. The 2002 analysis was based on an IDNR floodway determination completed in 1996 for Jordan Creek and its tributaries adjacent to Phase II. The applicant submitted a revised analysis of the unnamed tributary, which was reviewed by CBBEL in memorandums dated May 11 and May 17, 2006. The applicant utilized the 1996 IDNR approved analysis for the downstream portion, revised the cross-sections through the subject site based on updated topographic information, revised contraction and expansion coefficients, and revised the 100-year frequency discharge through the subject site, based on a new hydrologic analysis of the watershed. The 100-year frequency flood elevations developed by the applicant, and documented in the Floodway Analysis Report – Unnamed Tributary to Jordan Creek, dated May 15, 2006, were found to be in compliance with the Tippecanoe County Stormwater Management Ordinance (Ordinance) and the Tippecanoe County Stormwater Technical Standards Manual (Standards).

For future reference, there were no floodway encroachments for cross sections 9 through 14 in the floodway analysis; therefore, the floodway and floodplain limits through this area should be considered the same.

Based on information available to CBBEL, it does not appear that any Tippecanoe County Regulated Drain exists at or near the project site. There are no regulated drain encroachments or crossings proposed with this development. Runoff from the site eventually discharges to an unnamed tributary of Jordan Creek. The project site is within the Tippecanoe County MS4 Area and the Wabash River-Jordan Creek 305(b) Priority Watershed.

This project was previously reviewed in a memorandum dated February 23, 2007. After a review of the most recently provided information, CBBEL recommends final approval of the stormwater management plan with the following conditions:

Variances/Encroachments

1. The applicant is requesting a variance for stormwater quality treatment for the uncontrolled areas D-1, D-2, UC-1, UC-2, and D-H. The applicant must submit additional and revised information before this request can be considered. The applicant must use methodology discussed in Chapter 9, Section C of the Standards to determine the water quality flow rate for sizing the BMP measures (Stormceptor Units). The unit size should be consistent with information published by the city of Indianapolis. Also, a weighted average Total Suspended Solids (TSS) removal rate must be provided for the entire site.

Stormwater Quantity

1. The applicant is requesting a detention exemption for Drainage Basin UC-2. The applicant has shown that the peak discharge and peak volume from UC-2, as well as outlet conditions, will remain unchanged; therefore, it appears that the exemption criteria found in Chapter 3, Section 2.A.(iii) of the Ordinance have been met.
2. Drainage basin information and a schematic diagram still should be provided for the 10-year and 100-year developed-condition analyses of the proposed project. A drainage area map corresponding to the drainage areas used in the PondPack model should be provided as well. Moreover, a complete copy of the PondPack model – including drainage areas, times of concentration, and curve number input data – still should be provided. Time-of-concentration and curve number calculations should be provided for all post-developed drainage areas.
3. The method used in the PondPack model to consider tailwater impacts on pond outlet performance should be explained in detail.
4. Existing and proposed finished floor elevations (FFE) must be provided for Lots 100-106 of Orchard Subdivision, Phase 2, Section 1 to ensure no adverse impacts to residences in the event a major stream flow event along the UNT Jordan Creek overtops Scarlett Drive at a break over elevation of 660.7 feet.

5. Pond emergency spillway elevations and dimensions used in the PondPack model and noted in the plan view and Typical Spillway Section on Sheet 6 of the construction plans should be consistent. Also, the applicant should provide calculations indicating the emergency spillways have been designed to convey 1.25 times the peak 100-year discharges and peak 100-year velocities into the ponds in the event the primary outlets fail or a similar large storm event occurs prior to a reduction of the peak pond storage volumes.
6. Lot 121 must be designated as an outlot and drainage easement for revised Pond G. Also, a revised Final Plat for Phase 3, Section 1 should be provided.
7. A drainage easement should be provided for storm sewer line YY through Lot 106.
8. The runoff rates listed in the Q inlet Pond Pack (cfs) column of the Gutter Spread Calculations for curb inlets 6, 7, 8, and 9 do not match the computed runoff rates.
9. The Grading Plan must show that building pad elevations for Lots 124, 125, and 128, which are adjacent to 100-year storm overflow paths, provide at least 1 foot of freeboard above the anticipated overflow path water surface elevations (per Chapter 4, Section M of the Standards). Building pad elevations may be established based on a set of pre-determined conditions (see Table 4-5 in Section M) or flow depths may be calculated independently using an appropriate methodology. Calculations must be submitted for review along with information indicating the 1 foot of freeboard has been met.

Stormwater Quality

1. The post-construction Best Management Practice (BMP) Operations & Maintenance (O&M) Manual should include site drawings that clearly show the proposed stormwater quantity management system, stormwater quality BMPs, BMP maintenance and access easements, a schematic detail of the water quality treatment unit(s), and an estimate of annual maintenance and inspection fees. Maximum design treatment flow ratings should be provided for the selected unit(s) as well. Also, schematic details of the proposed Stormceptor Units should be added to the plans.
2. Section C on Sheet 11 of the Stormwater Pollution Prevention Plan (SWPPP) should focus solely on post-construction elements. It should be amended to address the following items:
 - a. Item C2 includes the active and post-construction benefits of the proposed ponds. Since the ponds are not designed to function as post-construction stormwater quality Best Management Practices (BMPs), they should not be referenced in this section. Only the installation sequencing of designated BMPs should be discussed.
 - b. Item C3 should refer to proposed BMPs for meeting the required Total Suspended Solids (TSS) removal rate of 80% (Stormceptor Units).
 - c. Item C4 should refer to the appropriate sheets that provide location, dimension, specification, and construction information for the stormwater quality measures.

- d. Item C5 should indicate that maintenance guidelines are contained in the BMP O & M Manual.

General Conditions

1. Certified construction plans and a copy of the certified drainage report must be submitted.
2. The applicant must present the project at the Tippecanoe County Drainage Board meeting for the project to be considered for approval.
3. The applicant must pay any final drainage review fees per Ordinance 2005-04-CM and submit a letter to the County Surveyor's Office stating that these fees will be paid.
4. The applicant must pay the Phase II stormwater program fees.
5. The applicant must provide proof to the Tippecanoe County Surveyor's Office (TCSO), of the formation of a Homeowners Association (HOA), which will assess sufficient funds for the inspection and maintenance of all drainage facilities. An estimate of the needed annual assessment for maintenance and inspection of the drainage facilities must also be provided to the TCSO. In addition, a yearly report must be submitted to the TCSO to show that the HOA is still active and to report the amount of assessments collected.
6. The applicant must provide recorded copies of restrictive covenants satisfactory to the Tippecanoe County Drainage Board and the Tippecanoe County Surveyor's Office.
7. If no assurance is required under the Unified Subdivision Ordinance, Section 4.1, the Comprehensive Stormwater Management Ordinance of Tippecanoe County (Ordinance) still requires an assurance, made out to the Tippecanoe County Drainage Board, for an amount equal to 100% of the total costs of implementing measures required by Chapters 3, 4, and 5 of the Ordinance. See Chapter 6, Section 7 of the Ordinance for more information.
8. The property owner, developer, or contractor shall be required to file a three-year maintenance bond or other acceptable guarantee with the Tippecanoe County Drainage Board, prior to final approval, in an amount not to exceed ten percent (10%) of the cost of the stormwater drainage system located outside the public road right-of-ways. See Chapter 6, Section 9 of the Ordinance for more information.
9. All listed issues must be completely addressed before final plan approval and sign-off will be granted by the County Surveyor's Office.

No error or omission in the plans, calculations or applications (whether said plans, calculations, or applications have been reviewed by the review engineer or not) shall permit or release the applicant and designer from constructing this work in any other manner than that provided for in the County Ordinance.

pc: C & S Engineering

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